

What is claimed is:

1. An optical switch, comprising:
 - a mirror, an inclination angle of which varies
 - 5 depending on an application voltage;
 - a driver device applying the application voltage to the mirror;
 - an oscillation device generating an additional signal of a prescribed frequency;
 - 10 a superimposition device superimposing the additional signal on the application voltage;
 - a detection device detecting a signal component of the prescribed frequency from light reflected on the mirror; and
 - 15 a control device controlling the application voltage based on the detected signal component.
2. The optical switch according to claim 1, further comprising:
 - 20 a storage device storing at least one of information about the application voltage and information about optical-coupling efficiency of the optical switch; and
 - a notification device notifying a prescribed notification addressee of the information stored in the
 - 25 storage device.

3. The optical switch according to claim 1, wherein
said oscillation device generates an additional
signal of a frequency higher than a mechanical resonance
5 frequency of said mirror.

4. An optical switch, comprising:
a mirror, an inclination angle in a first direction
of which varies depending on a first application voltage
10 and an inclination angle in a second direction of which
varies depending on a second application voltage;
a first driver device applying the first
application voltage to the mirror;
a second driver device applying the second
15 application voltage to the mirror;
a first oscillation device generating a first
additional signal of a first frequency;
a second oscillation device generating a second
additional signal of a second frequency;
20 a first superimposition device superimposing the
first additional signal on the first application voltage;
a second superimposition device superimposing the
second additional signal on the second application
voltage;
25 a detection device detecting respective signal

components of the first and second frequencies from light reflected on the mirror;

a first control device controlling the first application voltage based on the detected signal component of the first frequency; and

a second control device controlling the second application voltage based on the detected signal component of the second frequency.

5. An optical switch, comprising:

a former-stage mirror, an inclination angle in a first direction of which varies depending on a first application voltage and an inclination angle in a second direction of which varies depending on a second application voltage;

a latter-stage mirror, an inclination angle in a third direction of which varies depending on a third application voltage and an inclination angle in a fourth direction of which varies depending on a fourth application voltage;

a first driver device applying the first application voltage to the mirror;

a second driver device applying the second application voltage to the mirror;

a first oscillation device generating a first

additional signal of a first frequency;

a second oscillation device generating a second additional signal of a second frequency;

a first super imposition device superimposing the
5 first additional signal on the first application voltage;

a second super imposition device superimposing the second additional signal on the second application voltage;

a third driver device applying the third
10 application voltage to the latter mirror;

a fourth driver device applying the fourth application voltage to the latter mirror;

a third super imposition device superimposing the third additional signal on the third application voltage;

15 a fourth super imposition device superimposing the fourth additional signal on the fourth application voltage;

a detection device detecting respective signal components of the first, second, third and fourth
20 frequencies from light reflected on the latter-stage mirror; and

a first control device controlling the first application voltage based on the detected signal component of the first frequency;

25 a second control device controlling the second

application voltage based on the detected signal component of the second frequency;

a third control device controlling the third application voltage based on the detected signal component of the third frequency; and

a fourth control device controlling the fourth application voltage based on the detected signal component of the fourth frequency.

6. A control device for an optical switch with a mirror, an inclination angle of which varies depending on an application voltage, comprising:

a driver device applying the application voltage to the mirror;

an oscillation device generating an additional signal of a prescribed frequency;

a superimposition device superimposing the additional signal on the application voltage;

a detection device detecting a signal component of the prescribed frequency from light reflected on the mirror; and

a control device controlling the application voltage based on the detected signal component.

7. A control device for an optical switch with a mirror,

an inclination angle in a first direction of which varies depending on a first application voltage and an inclination angle in a second direction of which varies depending on a second application voltage, comprising:

5 a first driver device applying the first application voltage to the mirror;

 a second driver device applying the second application voltage to the mirror;

 a first oscillation device generating a first
10 additional signal of a first frequency;

 a second oscillation device generating a second additional signal of a second frequency;

 a first superimposition device superimposing the first additional signal on the first application voltage;

15 a second superimposition device superimposing the second additional signal on the second application voltage;

 a detection device detecting respective signal components of the first and second frequencies from light
20 reflected on the mirror;

 a first control device controlling the first application voltage based on the detected signal component of the first frequency; and

 a second control device controlling the second
25 application voltage based on the detected signal

component of the second frequency.

8. A control device for an optical switch with both a former-stage mirror, an inclination angle in a first direction of which varies depending on a first application voltage and an inclination angle in a second direction of which varies depending on a second application voltage, and a latter-stage mirror, an inclination angle in a third direction of which varies depending on a third application voltage and an inclination angle in a fourth direction of which varies depending on a fourth application voltage, comprising:
- a first driver device applying the first application voltage to the former-stage mirror;
 - a second driver device applying the second application voltage to the former-stage mirror;
 - a first oscillation device generating a first additional signal of a first frequency;
 - a second oscillation device generating a second additional signal of a second frequency;
 - a first superimposition device superimposing the first additional signal on the first application voltage;
 - a second superimposition device superimposing the second additional signal on the second application voltage;

a third driver device applying the third application voltage to the latter-stage mirror;

a fourth driver device applying the fourth application voltage to the latter-stage mirror;

5 a third oscillation device generating a third additional signal of a third frequency;

a fourth oscillation device generating a fourth additional signal of a fourth frequency;

10 a third superimposition device superimposing the third additional signal on the third application voltage;

a fourth superimposition device superimposing the fourth additional signal on the fourth application voltage;

15 a detection device detecting respective signal components of the first, second, third and fourth frequencies from light reflected on the latter-stage mirror;

a first control device controlling the first application voltage based on the detected signal component of the first frequency;

a second control device controlling the second application voltage based on the detected signal component of the second frequency;

25 a third control device controlling the third application voltage based on the detected signal

component of the third frequency; and

a fourth control device controlling the fourth application voltage based on the detected signal component of the fourth frequency.

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9. An optical switch, comprising:

a mirror, an inclination angle of which varies depending on an application voltage;

10 driver means for applying the application voltage to the mirror;

oscillation means for generating an additional signal of a prescribed frequency;

superimposition means for superimposing the additional signal on the application voltage;

15 detection means for detecting a signal component of the prescribed frequency from light reflected on the mirror; and

control means for controlling the application voltage based on the detected signal component.

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